



DATASHEET

HIGH CAPACITY CENTRE HOLE LOAD CELL

MODEL ELC-30S-H



INTRODUCTION

Load cell is used to determine load in rock bolts, tiebacks, foundation anchors, cables or struts depending on the application. Encardio-rite model ELC-30S-H is also used for compressive load measurement between structural members i.e. tunnel supports or at the junction between a beam and the top of a pile strut.

The ELC-30S-H is a precision engineered high capacity load cell with a central cylindrical hole. It is specially designed for civil engineering applications. It is available in capacities ranging from 3500 kN to 10000 kN.

FEATURES

- Rugged & robust construction
- Suitable for hostile & severe environment
- Temperature compensated
- Eight or more strain gages incorporated to reduce positioning effect
- Any standard strain gage bridge measuring read-out device can be used

APPLICATION

- To determine load in rock bolts, tiebacks, foundation anchors, cables or struts
- Proof testing and long term performance monitoring of different kind of anchor systems
- Compressive load measurement between structural members i.e. tunnel supports or at the junction between a beam and the top of a pile strut
- Used extensively for correlating data obtained from bore hole extensometers



DESCRIPTION

The center hole load cell comprises of a cylinder of high strength martensitic stainless steel. It generally uses eight 350 Ohm resistance strain gages, wired to form a 700 Ohm bridge for capacity 3500 kN and 5000 kN. For capacities above 5000 kN, sixteen 350 Ohm resistance strain gages are used to form a 1400 Ohm bridge. To minimize the effect of uneven and eccentric loading, the strain gages are equally spaced along the circumference.

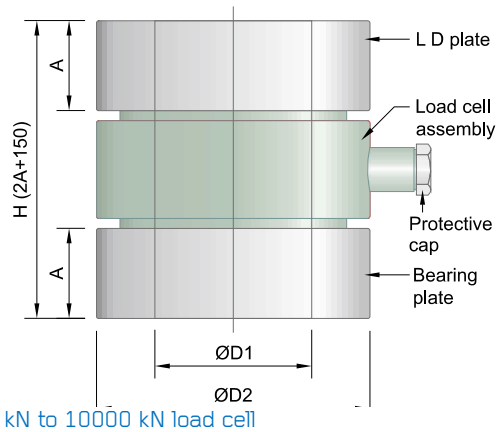
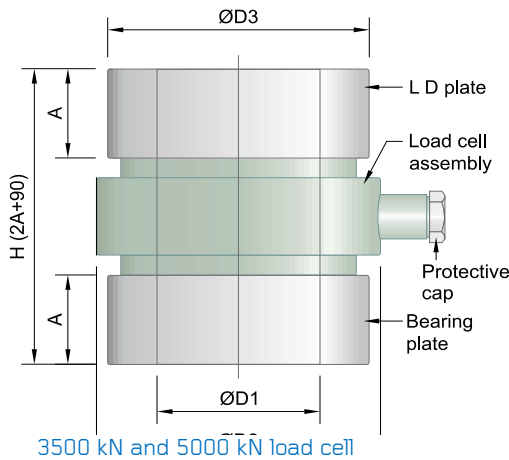
Load applied to the cell can be measured by using any standard digital read-out unit suitable for resistive strain gage type sensors. The data can also be automatically collected at desired frequency, stored and transmitted to remote server by a suitable datalogger using multiplexer/busmux or SDI-12 digital interface.

The sectional area of the element is varied in the different capacity load cells to give approximately the same millivolt output for a variation of zero to full load.

ORDERING INFORMATION

Model ELC-30S-H- X/Y
Capacity kN/ID

DIMENSIONS



SPECIFICATIONS

Type	Resistive strain gage
Range (kN/ID mm)	3500/185, 5000/202, 7500/225, 10000/208, or as specified
Over range capacity	120 %
Non linearity	± 1 % fs (± 0.5 % fs also available)
Output	1.5 mV/V ± 20 %
Excitation	10 V DC (max. 20 VDC)

Terminal resistance (3500/5000 kN)

Input	770 Ohm ± 5 %
Output	700 Ohm ± 1 %

Terminal resistance (above 5000 kN)

Input	1540 Ohm ± 5 %
Output	1400 Ohm ± 1 %
Temperature limit	-20° to 80°C
Cable connection	Four core shielded 5 m long/or as specified

Capacity kN	Centre hole load cell				Load distribution/bearing plate			
	D1 (ID) mm	D2 (OD) mm	Ht. (A) mm	Wt. kg	D1 (ID) mm	D3/D2 (OD) mm	Ht. (A) mm	Wt. kg
3500	185	260	90	11	185	250	60	11
5000	202	293	150	34	202	295	70	20
7500	225	315	150	36	227	315	70	21
10000	208	315	150	42	210	315	80	28

*All specifications are subject to change without prior notice